CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

DATE: April 22, 2008

TO: Interested Parties

FROM: Ron Yasny, Compliance Project Manager

SUBJECT: PETITION TO AMEND THE PROJECT DESCRIPTION AND OPERATING PARAMETERS FOR THE COOLING TOWER AT THE SACRAMENTO MUNICIPAL UTILITY DISTRICT FINANCING AUTHORITY'S COSUMNES POWER PLANT (01-AFC-19C)

On November 7, 2007, Sacramento Municipal Utility District Financing Authority (SFA) filed a petition with the California Energy Commission requesting to modify the Cosumnes Power Plant (CPP). Staff prepared an analysis of this proposed change, and a copy is enclosed for your information and review.

The 500-megawatt project was certified by the Energy Commission on September 9, 2003, and Phase 1 began commercial operation on February 21, 2006. The CPP is located 25 miles southeast of the City of Sacramento, in Sacramento County.

SFA requests modification to the Project Description and Air Quality Conditions of Certification relating to total dissolved solids (TDS) and particulate matter (PM10) emissions for the existing cooling tower at the CPP. Regarding the project description, the cooling tower constructed as part of Phase 1 differs from the cooling tower described in the Commission Decision. The proposed nine-cell cooling tower with one cell used as reserve was changed to a larger eight-cell cooling tower with no cell in reserve. This resulted in changes to the overall dimensions and water and air flow rates of the cooling tower. In addition, the SFA seeks Commission approval of changes to Conditions of Certification AQ-18, AQ-19 and AQ-24, relating to permitted emissions levels for TDS and PM10. The Sacramento Metropolitan Air Quality Management District (District) approved the TDS and PM10 changes on May 1, 2007.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety, and proposes revisions to existing conditions of certification as follows:

AQ-18	Change allowable daily emission levels for PM10
AQ-19	Change allowable quarterly and yearly emission levels for PM10
AQ-24	Change allowable emission levels for TDS for any consecutive three-hour period.

With respect to the cooling tower changes altering staff's original visible plume and noise conclusions, staff also reviewed plume models and noise studies completed in March and December 2006 as well as February and May 2007. It is staff's opinion that the change in plumes is less than significant. Noise mitigation per the Commission's conditions of certification was completed and the results verified during these studies. With the noise mitigation measures and the implementation of revised air quality

conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff's analysis has been posted on the Energy Commission's web page at http://www.energy.ca.gov/sitingcases/smud/compliance/index.html. The Energy Commission's Order (if approved) will also be posted on the web page. Energy Commission staff intends to recommend approval of the petition at the June 4, 2008 Business Meeting of the Energy Commission. If you have comments on this proposed modification, please submit them to me at the address below prior to May 08, 2008

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Comments may be submitted by fax to (916) 654-3882, or by e-mail to ryasny@energy.state.ca.us. If you have any questions, please contact me at (916) 651-1227.

Enclosure

COSUMNES POWER PLANT (01-AFC-19C)
PETITION TO AMEND THE PROJECT DESCRIPTION AND OPERATING PARAMETERS FOR THE COOLING TOWER
Air Quality Staff Analysis
Prepared by: Tuan Ngo
April 18, 2008

INTRODUCTION

On November 07, 2007, the Sacramento Municipal Utility District Financing Authority filed a request to amend Conditions of Certification **AQ-18**, **19** and **24** to increase particulate matter less than 10 microns in diameter emission limits of the cooling tower and the Cosumnes Power Plant.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Air Quality Table 1 summarizes the applicable LORS for the facility.

AIR QUALITY Table 1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	*Description*
Federal	New Source Review : Best Available Control Technology (BACT) and Offset requirements
	Title V: Federal permit
	New Source Performance Standard: 75 parts per million (ppm) Nitrogen Oxides (NOx) and 150 ppm Sulfur Oxides (SOx) @15 percent oxygen (O_2).
State	California Health and Safety Code: Permitting of source needs to be consistent with approved Clean Air Plan
Local	New Source Review: BACT and offsets
	Acid Rain: Requires continuous emission monitoring system
	Particulate Matter and Visible Emissions: Emissions shall not be darker than Ringelmann No. 1 for a continuous three-minutes, and no more than 0.15 grains PM per standard dry cubic foot.

STAFF ANALYSIS

Staff's objectives in completing the air quality analysis for this amendment request are (1) to identify whether there is a potential for a significant air quality impact; and (2) to assure that appropriate mitigation measures have been applied to avoid or mitigate the identified potential air quality impacts.

In 2003, Cosumnes Power Plant (CPP) was licensed with two natural gas-fired General Electric model 7241FA combustion turbines, two unfired heat recovery steam generators , one steam turbine, one nine-cell cooling tower, and various support equipment. The original cooling tower design specifications included eight active cells

and one spare cell, a maximum water recirculation rate of 125,867 gallon per minute (gpm) and a maximum total dissolved solid (TDS) of 470 parts per million (ppm) by weight. During the final design, the equipment vendors determined that there was not sufficient space for the nine-cell cooling tower, and instead, recommended installation of an eight-cell cooling tower with a recirculation rate of 155,000 gpm and 800 ppm TDS that achieved the same heat rejection as the nine cell tower. The changes from the initial specification and the implications for permit limits were not reflected in the Condition of Certification, but are now the subject of this amendment.

Because the cooling tower particulate matter less than 10 microns in diameter (PM10) emissions are directly affected by the water recirculation rate and its dissolved solid content, increasing the recirculation flowrate and the TDS (Condition of Certification **AQ-24**) would increase its potential to emit to 7.4 pounds per day (lbs/day) from the licensed limit of 3.6 lbs/day (Condition of Certification **AQ-18**). The additional cooling tower emission would increase the facility potential to emit PM10 emissions to 439.4 lbs/day from the original limits of 435.6 lbs/day (Condition of Certification **AQ-18**).

Because the potential daily emissions of the cooling tower are increasing, the facility's PM10 quarterly emission limits listed in Condition of Certification **AQ-19** have to be revised to reflect the new facility PM10 potential to emit.

Staff reviewed the facility source test results for the past two years and concluded that even with the slightly higher potential hourly and daily emissions from the cooling tower, the facility will not exceed the existing PM10 emission limits. Therefore, the facility's continuing compliance with the PM10 emission limits is expected. However, the applicant will provide additional emission reduction credits to satisfy Sacramento Metropolitan Air Quality Management District (District) rules and requests amendment of condition **AQ-18**, **19** and **24.** While staff expects the cooling tower emissions not to exceed existing limits, thereby posing no significant impacts to the ambient air quality, compliance with District rules requires revision of the daily and quarterly emission limits and the surrender of addition PM10 emission reduction credits.

CONCLUSIONS AND RECOMMENDATIONS

While the amendment would not result in any actual emission increase and thus no additional impacts are expected, additional PM10 emission reduction credits (ERC) have been provided for compliance with District rules. The District approved these changes June 12, 2007.

Staff finds that, with the adoption of the attached revised conditions of certification, the proposed amendment to the CPP would comply with all applicable laws, ordinances, regulations, and standards including those of the District rules and regulations.

The facility is expected to operate in compliance with the applicable District rules and regulations. Staff recommends approval of the SFA amendment request. Specifically, staff recommends revisions to Conditions of Certifications **AQ-18**, **AQ-19** and **AQ-24**. The specific revised Conditions of Certification are shown below in **Bold underline**/ ~~strikeout~~ format.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

AQ-18. Emissions of NOx, CO, ROC, SO_x, and PM_{10} from Phase 1 of the CPP facility including start-ups and shut-downs shall not exceed the following limits.

Pollutant	Maximum Allowable Emissions (lbs./day)			
	CTG #1	CTG #2	Cooling Tower	Total
NO_x	523.7	523.7	NA	1,047.4
CO	3,051.7	3,051.7	NA	6,103.3
ROC	117.3	117.3	NA	234.6
SO_x	31.4	31.4	NA	62.9
PM_{10}	216.0	216.0	~~3.6~~ **7.4**	~~435.6~~ **439.4**

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQ-19. Emissions of NOx, CO, ROC, SO_x, and PM_{10} from Phase 1 of the CPP facility including start-ups and shut-downs shall not exceed the following limits.

Pollutant	Maximum allowable emissions				
	Qtr 1 (lbs./quarter)	Qtr 2 (lbs./quarter)	Qtr 3 (lbs./quarter)	Qtr 4 (lbs./quarter)	Total (lbs./year)
NO_x	62,021	62,643	63,265	63,265	251,194
CO	147,929	148,687	149,444	149,444	595,505504
ROC	14,807	14,958	15,110	15,110	59,986
SO_x	5,405	5,465	5,525	5,525	21,922
PM_{10}	~~39204~~ **39,550**	~~39640~~ **39,989**	~~40075~~ **40,428**	~~40075~~ **40,428**	~~158984~~ **160,395**

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQ-24. The total dissolved solids content of the circulating cooling water shall not exceed ~~470~~ **800** ppmw, averaged over any consecutive three-hour period.

Verification: The project owner shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. In addition, the project owner shall include information on the date, time, and duration of any violation of this permit condition in the quarterly and annual reports.